

DRAGON



USER

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May 1988

The independent Dragon magazine

Explore the Dragon's
hidden depths

Nitemove — thought
provoking strategy

Arcade Arena



Kung Fu — The Master
20 Games to be won

DRAGON USER



Telephone Number:
(UK) 081 450 4303

Editor:
JOHN COOK

Production Editor:
BRENDA HALES

Software Editor:
CHRISTIAN TAYLOR

Editorial Secretary:
LUINDA LEE

Advertisement Manager:
RONALD LAMSTON

Administration:
GERALDINE SMYTH

Managing Editor:
PETER WORLOCK

Publishing Director:
JENNIFER IRVING

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How to submit articles:

The quality of the material we can publish in Dragon User must match up to a very high standard. Dragon is the quality of the experience that you can make with your dragon. The Dragon magazine was launched so to the market with a powerful vision of how the world can be seen — and how it can be experienced.

Articles which are submitted to Dragon User for publication should be no more than 2000 words long; all submissions should be typed. Please send with listing on one side a double space between each line. Programs should be written in BASIC. In computer programs on plain white paper and no sooner printed by a tape of the program.

We cannot guarantee to return every submitted article or program so please keep a copy. If you want to have your program published you must include a stamped self-addressed envelope.

Contents

Letters

Your chance to get in touch with other Dragon Users across the nation — may the greater User group in Germany assist contacts — Pope Gregory — the controversy continues — cowboy computer report — a cautionary tale — and many more.

News

Details of Leeds show — McGowan goes to Stadium Street — how to stop that menu interference — free Dot manuals from Curious

People's Chart

You come, you see, you vote — a new number one and a new chart entry — it's all there!

Reviews

Jason Orbaum passes judgement on Total Eclipse — (was it worth the wait?) — and gets ready over distributor — Parts comes back after a few bad reviews — and goes through its paces.

Expert's Arcade Arena

Yes — by public demand — your very own arcade feature devoted to Dragon arcade games — written by the mysterious "Expert" Pokes Hots, Ipa — we want them!

Machine Code Tutor

This month Orbaum and Campbell hand out the first helping of actual code — can your brain handle it?

Editorial

AT LAST — the sun shines, the warm breezes blow, the bulbs begin to sprout — and early evening TV has got just that little bit worse. It can mean only one thing. Spring has finally arrived — and with it, the promise of a flurry of activity for the Dragon and its kin.

As far as events go, we've already had the Dragon "Weekend in Wales" (a moderate success by all accounts) and then there's the Biannual "1986 Conversion" held only a couple of weeks ago (expect a full report next issue). There's the John Penn show in Leeds coming up soon. But that's not all.

Quite a bit of new software seems about to become available. Incentive's Time Lord is well on the way (with my thanks a numerous of a new mega-game written by Eddie Steady Go programmer Jason Peters). Steady has plans to release his new titles, Boulder Creek, Giggles, Trun, plus an answer to Knight Lore (I), Starman Jones, and the Temple of Doom. More too from Microsolutions, of course, and newcomers Microvision. Lack of software? What lack of software?

Thinking of games — the arcade addicts amongst you might be pleased to notice our newest feature making its first appearance this month — Expert's Arcade Arena. You'll be more pleased to know that it was brought about largely due to the number of letters we received, demanding it.

So if there's a subject you want us to cover — Beginners Basic maybe, GS-6, Communications, anything — why not drop us a line? We don't promise to answer everyone, but your piece won't fall on deaf ears.

But one way or the other — it looks like it's going to be a long, hot summer for the Dragon.

Nitmove

Moving down a gear from our normal associate editor, this month we present an intriguing chess based puzzle set in machine code — thanks to Pet McCloskey and Colin Turner.

Communication

Problems problems — this is what it's all about. These seven卓of questions seeking a little bit of help — can you find a handle?

Monitor

For those of you following the Machine Code Tutor series, but without an electronic kit — this could be what you're looking for — from the keyboard of Peter Whittlesey

Dragon Answers

David Cridge takes a looky look out of the nest bag and sees to right one or two of those annoying Dragon wrings

Adventure Trail

This issue Mike Dennis leads boldly where no Dragon reviewer has gone before, into the outer reaches of the Universe — and is off home to help a few stranded interdimensional travellers.

Competition

Contests time is out to loose your intergalactic gun — and with the loss of the chance of winning a copy of Kung Fu — The Master Kung (Star) — how can you resist?

MICRODEAL HAVE DONE IT AGAIN!

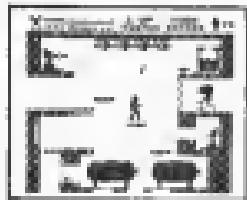
THE USA'S CURRENT NO 1

SHOCK TROOPER

The Greatest Hi-Res Graphic Arcade Game
Ever Written for Your Dragon/Tandy Colour 32K



Welcome Shock Trooper Squad Commander! Intelligence has intercepted a coded message revealing a plan to conquer Earth. Four of your Shocktroopers must infiltrate the heavily defended underground enemy base and steal all of their secret TRG-5 attack saucer sub-assemblies. Return them to our scientists for analysis. This secret information is crucial to our defence.



Good Luck!



5 Star Review



The public can't be wrong. Shocktrooper was the TOP seller on our 1985 Roadshow selling twice as many copies as its nearest rival.

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News desk

Show details

DETAILS have just been released concerning the forthcoming show organised by John Penn Software, as indicated in last month's Dragon User. The show is to be held in Castle Town Hall on Saturday 2nd May. As the doors open from 11am to 4pm, admission will be £1.00 for adults, 50p for children under 16, and free access.

Cassel is located just south of Luton off road 40 of the M1, explained Helen Penn. "It's very accessible and very easy to get to."

Trade supporters at the time of going to press are BBC, Computerware, Computerplay, Fantasy Friends, Gameplay, John Penn and Previews, although others were eager to stress that it was more than just a buying show. Other activities arranged so far include a demonstration of robot programming by an anonymous (Baby) program man, and an exhibition of books.

performed by the Roman Museum at St Albans using a Dragon who uses a complex graphics program to compute and display artefacts.

John Penn is still offering to pay the expenses of anyone who would like to present their particular project, so if you think yours might be suitable give him a ring on Gordon (0203) 58770.

Cumana manual

A FIFTY page publication is now available from Cumana Limited of Gainsford which introduces the reader to the Cumana disk drive operating system for Dragon 32 and 64 personal computers.

A copy of the Dragon Disk Guide is available free on request to Cumana, Limited, Peters Trading Estate, Westgate, Gainsford, Kent.

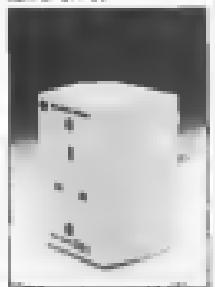
China crisis

CHINA veterans Macmillan Consultants report their most unusual request yet for their Printer Casino program — a conversion to print in Chinese! Always ready for a challenge, programme Project Manager Steve Cowen goes before his work crew at Holme圃 prints out right-left rather than the conventional left-to-right. Things could be worse, however, as he commented: "The dressing is required from China."

Those interested in person and otherwise contact Macmillan at 5 Archers Drive, Croydon, Surrey CR9 1JL. Tel (081) 732655.

such as your Dragon? The Master Filter Adapter fits directly into an ordinary wall socket and provides a continuous 'handing' of the electrical supply to plugged-in appliances.

The Adapter costs £1 around £15. from many electrical shops. The unit has no switch and draws 1.6A. Blue House, High Street, Tonbridge, Kent. Cheques should be made payable to BHA, in the sum of £17.90.



Plug it!

DURAPLUG. Electronic Limited has introduced an inexpensive solution to the problem of mains interference with sensitive electronic equipment.

Dragon User People's Chart

Results March 1986

1 Juxtaposition	(Wintersoft)
2 Speed Racer	(Microdeal)
3 Shaolin Master	(Quickbeam)
4 Eddie Steady Go	(Incentive)
5 Shocktrooper	(Microdeal)

Chart Four

Selling for Chart No. 4 issues at 75p per Friday 18th May 1986. Entries received after this date will not be eligible for inclusion in this month's selling. The editor's discretion is final. Only one entry per individual per month will be accepted.

My top 5. Voting Month 4

1	Name
2	Address
3 Number of Dragon users I know
4
5

My phrase is

THE DRAGON COMPUTER SHOW COMES TO YORKSHIRE

AT Ossett Town Hall
ON Saturday 31 May

AT 10.00am - 4.00pm

NOT ONLY will the leading retailers of DRAGON computer software, hardware and peripherals (Blaby : Compusense : Computape : Eclipse - Fenmar : Grosvenor : John Penn : Peaksoft) be there, offering some amazing bargains.

BUT ALSO there will be the opportunity to meet the Dragon experts. Look at the displays and watch the demonstrations of ways in which the Dragon is utilised. Have your queries answered by one of the leading Dragon programmers. See how the Verulanium Museum of St. Albans make use of the Dragon in their archaeological investigations, and watch a display of robotic control by the North West users.

Admittance : Adults £1.00
Children under 16 and O.A.P.s 50p

Easy access from M62 and M1 (Junction 40)
Ample car parking
Refreshments

If you would like to take part in the Show, in either of the above capacities, phone John Penn on 04203 5970.

Dragonsoft

Epic Venture

Program: Total Eclipse
Supplier: Eclipse-Firmer
Price: £9.95

BY THE TIME you need the money many of you will own copies of Total Eclipse and you will have found out whether or not it has lived up to expectations — I feel it has. It could definitely be described as the most loved game at Dragon factory. And the most wanted for... in all corners of the world.

This game let us have no bones about it: it's a hell of a lot of fun! What's in it? A game which lets you to see the dawn of the Dragon Solar System. You can sail if you like, or navigate, but not because of its flying elements, but because of its trading elements, but because they have been combined brilliantly with some of the most complex three-dimensional graphics ever seen on a home computer and a superb light simulator which constantly forces you to fly your way around the galaxy.

In this battles were played out in full three-dimensional glory with many ships, weapons and fighting, on screen at the same time.

Total Eclipse has taken the trading and strategy elements of Elite and enhanced them. In making a game of great skill (although, of course, it is still Kingdom!) However, to any one who has played Elite as a very poor second, the player is left priming as the keyworker for a full 3D space fight instead of a Cosmic Chaser (type of game in which I have never had to take more than a cursing shot at a time).

It is unfair to compare it to Elite however, and not a relevant point to say "Total game is good, but there is a game which beats it with much more". There are computers out there which can play called... and... and... On the other hand, the game stands up to the best in very addition very challenging and very good.

You the player are placed in charge of a small trading vessel under-equipped. To handle the rigours of interstellar trading but upgrades obviously are available for pieces which are at the

obvious end go up from there! Your job is to make as much cash as possible and become the top interstellar trader in the universe.

To succeed you spend much of your time wandering around the galaxy buying things cheaper than the average rate and selling them for more. Types of update have been memory both in fuel and in ship maintenance, so if your journeys aren't profitable because you haven't picked the right planetary trade between your fuel stations comes to more than your profit; you lose money and take it from the pot if a dog's life when that user has spent down until you end up out of fuel floating around some galaxy or other somewhere.

The trading is easy to get to grips with, but not as easy to master. The simplicity is also what has served to distinguish or make distinct the subtlety with which trade must be carried out.

I have yet to succeed in making a regular profit and my games consist mainly of flying around looking for dumped resources to buy or farm, then plan to sell food to others.

The flying is of course only one element of the game. Also in the galaxy are wrecks and ships that once proud but now vacuum collected remains of other such traders careers. These can be used for recycling one of these is simple board a get the log book, get out supplies and ship self-destruct and leave the log book in a space station to claim your reward.

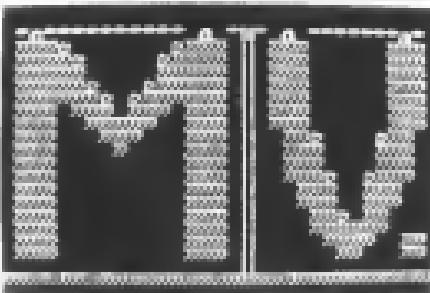
There are aspects to be revived (but there was no way I even come close to finding even a fraction of the amount necessary to buy the mining equipment) for sale to be sold to the space stations as well as pirates, customs, officers, galactic wars and all the other things you'd expect.

The game is simple to control with joystick or keyboard options, easy to load (all the load has been claimed and whitelisted up on the BBCODE) a joy to play.

There was a small bug in the newer copy but if they can get rid of the multi-tasking game of the past!

Jason Orteanu

Comments for review should be sent to Dragon User, 120-122 Little Newport Street, London WC2H 7PP



cool set of graphics even better.

The game is wonderful. Fabulous physics looks fine sounds groovy packaged nicely very addictive a combination of skill and logic to test even the most intelligent player.

Three-quarters short review. With a game as good you can either read about it for pages or simply say how good it is and stop taking it in stop talking now except to say buy it!

Jason Orteanu

Groovy

Program: Groovster
Supplier: Micro Vision
Price: £7.95

This game was written by the man who wrote Jet Set Willy and Alice Miller. He is a brilliant programmeer. This is a short review. In fact this is a very short review.

Groovster is a Micro Vision type game with 60 screens and amazingly improved it is, an access code to please all hackers and the smallest but once accustomed to them

characters. This is the same system as used by most disc systems in particular CPC.

The manual goes into great detail on the disc format used by Dragonsoft, and is obviously written from extensive experience. Advice is given on how to recover from most types of disc damage. The layout of program headers on discs and directory entries are also explained in detail covering several sides of the manual.

Having said that, it is still down to the actual user to recover any damaged files — the system is not as automatic as some other dedicated disk doctor programs. However what you do get is a sophisticated disk editor and some very useful disk utilities.

The Disk-Ad program is likely to be of more use in day-to-day use. This allows to edit standard versions of many Dragon commands, for example MAME and COPY. Full wild-cards are supported using *? to replace any character and # to replace any number of

Shane Dodge



Expert's Arcade Arena

HELL-O and welcome to a slightly off-beat interview with Mike Garside - Advocate. That's kind of all who am I? Why I am writing under the name of The Expert? Why am anyone doing this? Why are there so many harmful additives in our foods? Lingotter questions over and all, they may not?

Finally, I am the Undebated Queen to the last, but I am not going to boast I am the Official champion of Dragon User arcade games in Britain.

Yes, I am the Person who has got past that annoying line in Coop Space that goes up and down! I am the Person who can do every screen on Asterix, Asterix (and) Imperial where they all are off Jet Set Willy! I can get into the thousands off Asterix. The Robot with power surges! I can even understand the instructions to Laser Zonk!

The reason for my success is unknown? Well, the Dragon User office was awfully well equipped with inferior gamekeeping on arcade cabinets and we give what the public wants... with a little help from you. What I need

now you see the maps of the games you've played is full Jet Set Willy map would be nice!

Please for the lives and the speed, and no refresh after you show an arccade game (unless for the sake of definition, as any game that doesn't require constant thought to play is a simple game). Also, any tips you have?

Thanked go out to Roger Hemmings for starting the ball rolling with a collection of hints. Says Roger:

I made that some Dragon User readers will be interested in the following cheat routines:

1) PCX8 BHNGH BH12 In

less E8 During the keyboard

version of The Bell, will give

entire lives

2) Changing Line 50 of the original Champion to read \$8 CA=10000000 CD=0 01-1 will cause a starting money of £1 million and an instant first division place

3) Change Line 200 in Microbot to read A-B FOR L-10A 1. Thereafter nothing

screen three or higher will give

a choice of any starting career.

Many thanks for those Roger and I look forward to reading many others from other readers in future months.

Every month I will present a shortlist of Games with a set of four marks, when these the marks are for Graphics, Playability, Addictiveness and Value for Money respectively and an overall total. You will find the results at the end of this column.

As far as my up to be the most complete part of the magazine I obviously welcome your letters with your opinions, of games, and any questions you have about them. So as much as you like, if you do agree with my opinions about something then say so, you have us teach right as me to speak out — well almost.

Also, remember, if you feel that you want your game included in the lists, and you want it talked about here on what is sure to become a very controversial forum send it to me. I can't say your game is great if I haven't seen it.

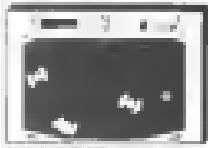
And any of you home programmers why not send me your masterpiece, you know the ones you wrote. Going to send to me? Good, but enclose a Software cassette and this magazine too and they'll always be on the lookout for good software houses need this magazine too, and they're off ways on the lookout for good games. Who knows? A few words from them and they could be contacting you!

Write to: Experts Arcade Arena, Dragon User, 12-16 Little

Wickham Street, London WC1N 7PP

	G	P	A	V
DragonUser (journale)	8	8	8	8
Cage Scratch (Bally)	8	8	8	8
Kung Fu — The Master (Bally)	8	8	8	8
Shootooper (Microstar)	10	8	7	9
Eddie, Steady-Dad (Incentive)	8	8	8	8

SMASH HITS FROM BLABY



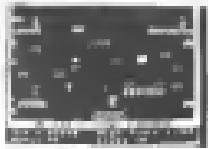
REVIEWED BY MIKE GARSDIE. This is the latest game from Blaby, and it's a real smash hit. It's a fast-paced action game where you must break out of a cage and escape from your captors. The graphics are excellent, and the gameplay is addictive. Highly recommended for all fans of action games.



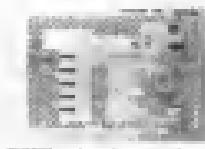
REVIEWED BY MIKE GARSDIE. Shootooper is a fast-paced action game where you must shoot your way through various levels. The graphics are excellent, and the gameplay is addictive. Highly recommended for all fans of action games.



REVIEWED BY MIKE GARSDIE. Eddie, Steady-Dad is a fast-paced action game where you must navigate through a kitchen. The graphics are excellent, and the gameplay is addictive. Highly recommended for all fans of action games.



REVIEWED BY MIKE GARSDIE. Kung Fu — The Master is a fast-paced action game where you must fight your way through various levels. The graphics are excellent, and the gameplay is addictive. Highly recommended for all fans of action games.



REVIEWED BY MIKE GARSDIE. Cage Scratch is a fast-paced action game where you must break out of a cage and escape from your captors. The graphics are excellent, and the gameplay is addictive. Highly recommended for all fans of action games.



REVIEWED BY MIKE GARSDIE. Eddie, Steady-Dad is a fast-paced action game where you must navigate through a kitchen. The graphics are excellent, and the gameplay is addictive. Highly recommended for all fans of action games.

BLABY COMPUTER GAMES

CROSSWAYS HOUSE
LUTHERWORTH ROAD, BLABY, LEICESTER
TELEPHONE 3620 1111 TELEX 100000 DRA 12



Operation Code

Your first helping code — explained step-by-step by Orbaum and Campbell.

AFTER last month's gentle introduction to the art of assembler programming, we are going to get down to some serious brain damage this issue with a small program (as promised last month), and a look through the simpler mechanics (the lines of code that you and I can understand, rather than the numbers that are fed to the processor).

First, for those who prefer a slightly more conversational approach to the subject, a somewhat small bibliography. We have only space to list one book fully qualified for the 6500, and that is "Programming The 6500" by Rodney Dale and William Lohman, published by Sybex (ISBN No. 0-89588-075-4). For the more advanced assembler programmer (yes, are you reading this for?) the Motorola specification sheet is probably worth a look, although we have never been able to get a copy.

The program listed this month is the clear screen routine mentioned in last month's

article. The format of the listing, working from left to right, is:

Address — In hexidecimal (or hex, this is base sixteen numerology — application is a later article) the address of the first byte of the instruction.

Instruction Operation Code — Generally known as the OP Code, as this is less of a mouthful although it has this part of what is passed to the processor to be interpreted.

Operands — Data for use by the processor — values depending on the instruction.

Line Number — From the Crosser editor purely decorative.

Labeled — Alert to the line number in BASIC used as a reference for jumps and subroutine calls, as well as for variable references.

Instruction Mnemonic — The instruction understood version of what is passed to the processor for reference.

Operands — This time in terms of labels or

however the programmer uses it to express it.

At the bottom of the listing is a list of all the lines used in alphabetical order with their addresses at the bottom. The only part of the listing we are really interested in is the rightmost three or four (depending on context and programming) columns, which contain the actual code as written by the programmer. This portion is the most stable between different assemblers (no, not different processors, but different Oregon Scientific programs), although there may be slight differences in the assembler directives — see later.

The best place to start explaining is probably at the top of the listing. The last two lines along with the last line produce no actual code for the processor and are the conventional assembler directives. The second line positions the code at address 2000 in memory, and there will probably be a line very similar to this at the

4E00	18	LDXHTR	000	9400	
4E10	07	ORG	200000		
4E20	C6 17	LDA	81		
4E30	86 00	LDA	8120		
4E40	98 0400	L0OP1	LDA	8P01HTR	
4E50	30 00	L0OP1	LDA		
4E60	87 24	L0OP2	STR	X	
4E70	38 9800	L0OP2	LDA	32-X	
4E80	8C 0000	90	CMPX	19600	
4E90	25 F6	100	BLO	L0OP2	
4EA0	108E H170	110	LDT	8400	
4EB0	31 F7	PAUSE	LDA	-1-Y	
4EC0	26 F1	120	SHE	PAUSE	
4ED0	58	130	SEED		
4EE0	2C E6	140	BGE	L0OP1	
4EF0	5F	150	CLFP		
4F00	26 60	170	LDA	896	
4F10	2C 0400	180	L0OP3	LDA	8P01HTR
4F20	31 F7	190	LDA	B-X	
4F30	87 94	200	L0OP4	STR	-1
4F40	30 9800	210	LDA	32-X	
4F50	8C 0000	220	CMPX	19600	
4F60	25 F0	230	BLO	L0OP4	
4F70	108E 0100	240	LDT	8400	
4F80	31 F7	250	DELRV	LDA	-1-Y
4F90	26 FC	260	SHE	DELRV	
4FA0	5C	270	118,0		
4FB0	31 20	280	CMPF	#32	
4FC0	25 E4	290	BLO	L0OP3	
4FD0	30	290	RTS		
4FE0		310	END	20000	

DELRV =4E54

L0OP1 =4E41

L0OP2 =4E21

L0OP3 =4E44

L0OP4 =4E46

PAUSE =4E37

POINTR=4000

L0OP1 =4E24

L0OP2 =4E26

L0OP3 =4E28

L0OP4 =4E2A

RTS =4E2B

END =4E2D

20000 =4000

L0OP2 =4E29

L0OP3 =4E2B

L0OP4 =4E2C

118,0 =4000

#32 =4000

20000 =4000

8400 =4000

32-X =4000

Y =4000

-1 =4000

X =4000

81 =4000

8120 =4000

896 =4000

19600 =4000

32-X =4000

118,0 =4000

81 =4000

8120 =4000

8P01HTR =4000

start of every program. The first line is an equals and empty means that all references to the word PCNTTR (line 100) will be replaced by the number \$400 at \$000, the start of the text section in memory. This serves to make the programs easier to read and modify. The last line marks the end of the program and makes the execution address \$0000 in this case the execution address in the same as the start address, but this does not always have to be the case.

Op-code

And so on to the mnemonics. As we have already described, the registers will assume a degree of familiarity with them but will try to drive in an understanding of the words Op-codes and Op-codes.

Line 30 brings us upon at last our first Op-code: it is LD8 which stands for LOAD REGISTER 8 Load R8, without len (\$10) and then the Operand #31. This R8 means 'the number'. If the command needs LDG R8 it would mean 'Load the R8 register with the contents of location 31'. That is, it is the assembler that actually means 'Load the R8 register with the number 31'. This is very important. The reason that we are enclosing R with \$ is that we do not need a memory address to be 'Offset' (the label used on the flowchart) as we have register 8 spare. (The chances of being able to do this in a big program are about as great as the chances of finding something punctual.)

Line 40 begins at a very simple looking it means 'Load register A with the number (R8) 128', op-code is LDA (Load A) operand is #128 (the number 128). 128 is the screen code for a black square. If we start at this number of memory locations that correspond to screen positions (the screen begins at \$400 (1024), the contents of PCNTTR, as defined by the earlier SCD command) and ends at \$BFF (1023), a black square will appear there.

Line 50 introduces us to our first label -- LDOPP1, pretty simple this, if reading the first place we will jump back to -- and they told you machine code was hard? The Operand Loads X with \$400, which is when the number PCNTTR is equal to R8 in the commandless LD8 PCNTTR (without the R8) R8 would be loaded with the contents of memory location \$400. Following?

Line 60 LDAX R X -- this is not so easy to explain so we will gloss over it until we cover the uses of the R8 and registers in a later article. In assembly (as in the program) aside the contents of register R8 at the contents of register X. The reason for this vagueness is that LDAX is a complex command with many different uses (See mode LDAX Command, B2).

Line 70 (the second loop) (thus labeled LDOPP2) branches up to another op-code named STA, which quite logically stands for 'Store the contents of register A'. Thus STA R X means 'Store the contents of register A in the memory location pointed to by X'. Therefore, on the first run the number 128 (contents of A) will be stored at location \$400 + 31 (the contents of R8) which is the end of the top line on the screen. This is the action line.

Line 80 adds to the X coordinate using the LEA8 command exactly as earlier, only with a number instead of a register. Note that there is no need for a R8 in this case. This operation can be signed as to take 32 from X we need only write LEA8, \$32 X.

Line 90 introduces CMPX. As you might guess (Remember 'Compare Z with R8') base R8 is being compared with the address at the bottom of the screen for obvious reasons (if you have understood the flowchart (Op-code GMPL Operand #1023)). NB. CMPX \$500 would compare R8 with the contents of memory location \$500 as described earlier.

Line 100 introduces a BRANCH command. This branch command will be covered in an article dedicated to the use next month for now the command returns 'Branch if LOClear then branch if less than or equal to' to the setting up of base coordinate instruction thus, if X is lower than \$500 the moving loop.

Line 110 Load register Y with #31.

Line 120 Called just as this is a loop designed to scroll the program down so that the effect is reasonable. This is achieved by decrementing the Y register (previously

loaded with \$300, and using another branch (Line 130), BNE, to go back and do it again if the result is nonzero).

Line 140 DECrement R8, subtract one from the contents of the R8 register.

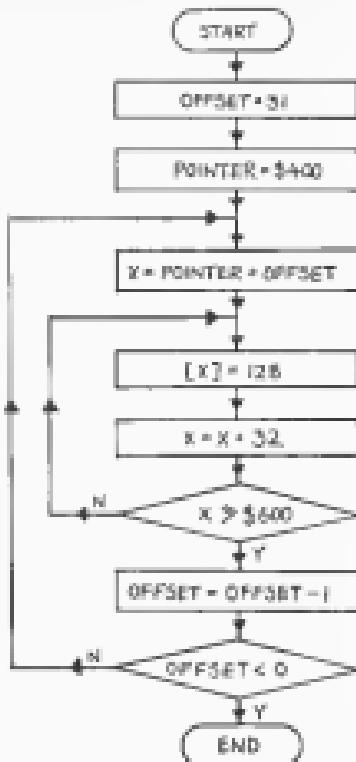
Line 150 (Branch R8 Greater than or Equal to - back to the setting up of the X register). This instruction controls the movement across the screen.

Line 160 COUNT R register. Equivalent to LD8 #30. This is to set the offset for the intensive book across the screen, which is performed by the code in lines 170-200, in much the same way as the previous part.

Line 165 RETURN from subroutine. Returns control the routine that called the code.

Well, that about wraps it up for the month so, glossary, although in a few months we will present an entire list of 8080 mnemonics and their meanings (in two editions) in various tables for reference.

Next month we will present a complete explanation of all the assembly directives, a full coverage of addressing modes, and base memory and a review on the branch instructions.



Knight Games

A cunning brainteaser — brought to you by Pat McCabe and Colin Turner

NO ARCADE action this month — just a rather tricky difficult mind challenge which is simple to play but hard-to-complete. The idea is to move the chequered cursor around a standard 8x8 chessboard using the cursor keys, moving as the knight does, in chess.

Starting with all the white squares, you must change them to orange and convert by taking off them, but without attempting to change the same square twice. The computer checks for invalid moves and stops play if there's nowhere to go — no Park is no option (it cheating).

Written in entirely patient, independent machine code, the menu-display screen is in with graphics and includes broken power instructions and memory counter. There are ten levels of play — Level One starts with seven pieces every time; Level Two starts on a random square.

To load the program, run the hex loader in Listing One and use it to enter the code given in Listing Two. When finished, save the code alongside with OS4 ROM "Rescue" (\$0001 102878) above. To load it back in use LOADROM and then the C64 message command up enter \$00C0 2000.

Naturally if you want to type in code in smaller amounts, run the hex loader and enter the hex addresses you want to stop at — you then have to take with Disassembler Addresser — \$0001 or \$0009 where \$0 is your first address. Read line by line load in the code, because it is your

start address.

However, if all that typing seems too daunting, an enhanced version with a higher scoring somewhat auto-selective available for the sum of £2.50 from P McCabe, 29 Spur View Road, Loughborough LE11 8SL.

Looking at the assembler listing you (those who assemble) you might guess that we are novices to machine code. The program structure might not be all that couldn't be, but this layout first attempt — so anyone stuck with this, do as we did — stick with it and you'll get there!

```
10 * ENTER EACH LINE OF ROM
20 * DIGITS, PRESS ENTER THEN
30 * ENTER THE CHECKSUM
40 CLR
50 INPUT"ENTER START ADDRESS" I$A
60 INPUT"ENTER FINISH ADDRESS" I$B
70 FOR K$H = I$A STEP 1$P
80 PRINTHEX(K$H); " "
90 CPRINT"INPUT VALUE"
110 FOR L$H = I$A TO LENGTH(I$A) STEP 1$P
120 U$VAL(I$H)+M$00000000,L$H,2$H
130 CPRINT"INPUT VALUE";L$H," "
140 R$H=1$P#T
150 R$H=R$H+1$P
160 INPUT ONE
170 IF CHICHEX(L$H) THEN 200 ELSE 180
180 NEXT
190 END
200 SOUND158,3$P#T#T"ERROR - ENTER LINE"
210 D$H=1$P#T#T
220 D$H=D$H+1$P
230 D$H=D$H+1$P
240 D$H=D$H+1$P
250 D$H=D$H+1$P
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2493 88888888888888888888	= 458	2668 88888888888888888888	= 492
2494 A88888888888888888888	= 518	2669 88888888888888888888	= 247
2495 C88888888888888888888	= 501	2670 88888888888888888888	= 285
2496 88888888888888888888	= 380	2671 88888888888888888888	= 444
2497 88888888888888888888	= 281	2672 88888888888888888888	= 283
2498 88888888888888888888	= 458	2673 88888888888888888888	= 492
2499 A88888888888888888888	= 518	2674 88888888888888888888	= 247
2500 C88888888888888888888	= 501	2675 88888888888888888888	= 285
2501 88888888888888888888	= 380	2676 88888888888888888888	= 444
2502 88888888888888888888	= 281	2677 88888888888888888888	= 283
2503 88888888888888888888	= 458	2678 88888888888888888888	= 492
2504 A88888888888888888888	= 518	2679 88888888888888888888	= 247
2505 C88888888888888888888	= 501	2680 88888888888888888888	= 285
2506 88888888888888888888	= 380	2681 88888888888888888888	= 444
2507 88888888888888888888	= 281	2682 88888888888888888888	= 283
2508 88888888888888888888	= 458	2683 88888888888888888888	= 492
2509 A88888888888888888888	= 518	2684 88888888888888888888	= 247
2510 C88888888888888888888	= 501	2685 88888888888888888888	= 285
2511 88888888888888888888	= 380	2686 88888888888888888888	= 444
2512 88888888888888888888	= 281	2687 88888888888888888888	= 283
2513 88888888888888888888	= 458	2688 88888888888888888888	= 492
2514 A88888888888888888888	= 518	2689 88888888888888888888	= 247
2515 C88888888888888888888	= 501	2690 88888888888888888888	= 285
2516 88888888888888888888	= 380	2691 88888888888888888888	= 444
2517 88888888888888888888	= 281	2692 88888888888888888888	= 283
2518 88888888888888888888	= 458	2693 88888888888888888888	= 492
2519 A88888888888888888888	= 518	2694 88888888888888888888	= 247
2520 C88888888888888888888	= 501	2695 88888888888888888888	= 285
2521 88888888888888888888	= 380	2696 88888888888888888888	= 444
2522 88888888888888888888	= 281	2697 88888888888888888888	= 283
2523 88888888888888888888	= 458	2698 88888888888888888888	= 492
2524 A88888888888888888888	= 518	2699 88888888888888888888	= 247
2525 C88888888888888888888	= 501	2700 88888888888888888888	= 285
2526 88888888888888888888	= 380	2701 88888888888888888888	= 444
2527 88888888888888888888	= 281	2702 88888888888888888888	= 283
2528 88888888888888888888	= 458	2703 88888888888888888888	= 492
2529 A88888888888888888888	= 518	2704 88888888888888888888	= 247
2530 C88888888888888888888	= 501	2705 88888888888888888888	= 285
2531 88888888888888888888	= 380	2706 88888888888888888888	= 444
2532 88888888888888888888	= 281	2707 88888888888888888888	= 283
2533 88888888888888888888	= 45		

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Taking Control

Your very own machine code monitor — written by Peter Whittaker

ONE OF the limitations of Basic is that it does everything for you and as it takes the operation of the computer from you, it turns to machine-code programming we can gain full control of the resources and my love of the computers provided by BBCW. There are no system routines to prevent us from trying to program low-level stuff and the Break key will not abort a memory program. Even pressing the repeat button will not help on every occasion. It is to help reduce these problems (especially for novices following our machine-code series) that this monitor program has been written. The program and its uses can be best explained by C64 Debug and exploring what it can do. (The code has no graphical page 2 and three so it can be used with or without a disc drive.) Look in the code from Listing Two using the Hex Loader (Layout 1) and save with CSAVE1.MEM. LOAD TOP 3000 5575 3000.

Functions

The program is called by EXEC0000 and will display an option list. The available functions are: Alter memory, Examine memory, R/W memory, Copy memory, Display memory as packed, Check memory errors, Register monitor, Set Break points, Clear Breakpoints, Jump to memory code, Break is machine code subroutine, and Return to Basic. Each is called by pressing the appropriate key. All addresses used by the program must be given in hexdecimal (Four digits, PXXH).

=A=—Alter memory from 3000H. After pressing this key an address hexbyte address from which you wish to start altering the memory contents. The screen then changes to display two columns of information. The first is the memory address, the second is the value stored at that address. If the third character given when the value is printed on the screen, and the fourth is the character given when the value is to be stored. The print and pack characters are not always the same. For example, POKE100000 gives a blank, whilst POKEStringD to the screen produces an inverse of the display and other several memory locations alone and before the location to be changed. The memory location to be altered is indicated by the following control and can be changed by pressing the up or down arrow keys. To alter the value stored just type in the value. To return to the options list press the <Break> key. This routine could be demonstrated by first entering the Basic program 10 CLEAR 300-30000. Then EXEC the Monitor and select the <Alter> memory routine. Give either 1000 or 3000 as the start address depending on whether or not you have a disc drive attached. The screen

should clear to show the Basic program listed down the columns. Now change the values stored from 300-30000 to 300-30000 and then press the <Break> key. Quit the monitor and let the Basic program run enough if it has changed to 10 CLR A0000-30000.

<C>—Examine memory from 3000H. Again this program requires a two byte Address (3000-FFFFH) and then clears to display the information. The screen is divided into rows of blocks of eight locations. Pressing the up or down arrows will scroll through the memory one line at a time, whilst pressing <Shift> at the same time will move a whole page. Pressing the <Break> key will switch between displaying the information as ASCII characters or as numbers, whilst pressing the <Break> will as usual, quit the routine. If you call this routine and enter 3000 as the start address you can page through the Monitor program (it will probably be noisy) displaying as numbers, but if you press the <Break> key it will be displayed as text, and then you will be able to find the location of the monitor messages stored in memory. A very useful function is provided by the <P>-size routine. When an address is entered the computer will display the memory as hex POKed to the real screen. As mentioned above printed characters are not always the same as packed characters.

Memory

The memory can be scrolled by pressing any of the arrow keys. Using the <End> and <Delete> keys will scroll the memory through one screen page (1024 bytes). Pressing the <Break> key will print the address of the last byte of the screen display and then wait for a key press before continuing. Press <Break> to return to the Options screen.

<R>—R/W memory from 3000H to 3FFFH with 252. This routine as implied lets anyone with a value between 00 and FF fill that area to the max screen. This is easily demonstrated by first reserving some graphics memory (P0CLEAR6) and then filling from 1000 to 3000 with any number from 00 to FF. This can then be checked up on either with the monitor or by displaying the graphics memory area (PMODE4 & SCREEN1,0 EXEC041104). One use of this routine is to fill an area of memory above a machine code program with the value 0F. This is the code for a SoftWare interrupt (see below), and if a running program jumps into memory, it will be redirected to the monitor routine.

<C>—Copy memory from 3000H to 3FFFH. This routine copies a block of memory from one location to another. It is not like the P0COPY1 command for the graphics page, but will work with any areas of memory. It requires the start and end address of the source block, but only the start address of the destination. Once done, the program returns to the menu.

<M>—Memory check from 3000H to 3FFFH. This routine is used to check memory computer memory is working properly. It works by way from the start address to the end picking every possible number to each address as it goes. If then needed to see whether each location has stored each number properly before moving onto the next address. If a location does not store a number properly, for example the program POK00 is two, has the location status is seven, it means one of two things. Either the memory location is defective, or it is not RAM but ROM and its contents are meant to be permanent (ROM equals \$40000 and above). If the location finds a defective memory location it prints a "Bad" message and waits for a key press before

```
10 *HEX LOADER FOR DRAGON MONITOR.
20 *BY PETER WHITTAKER.
30 INPUT "START ADDRESS":START
40 INPUT "FINISH ADDRESS":FINISH
50 FOR M=START TO FINISH STEP 8
60 PRINT H;" "
70 T1=0:INPUT PB:Z=8
80 FOR M=1 TO LEN(PB):STEP2
90 LEVRZ(M)=INT(PB,M,2))
100 T1=T1+POKE M,Z,L
110 Z=Z+1:NEXT M
120 PRINT " ";
130 INPUT T
140 IF T<0 THEN PRINT"error - ENT
      PB IN THE REGION." :GOSUB
150 NEXT H
```

Listing One

returning to the menu. Otherwise the program works through the end address displaying a "Paused" message at the very end and then waits for a long press before returning to the menu. To demonstrate that routine enter the block 0000-0000 and the screen will respond immediately with a 0000 FAIL message. This is because address 0000 is a part of the BASIC-ROM and not RAM. Try again and use addresses 0000-0000. This is the opt-in of the test screen and you will see the memory being tested as the routine runs. A little lower down the screen you will see the starting address and a PFAIL message. However, if you were to enter 0400-0500 as the block, although the memory would pass almost as soon as the test reached the part of the screen where the ADDRESS-PASSFAIL message is printed, the memory would fail the test. This is not due to the memory being defective, but because the program is changing the memory contents to print the message. So if you get some memory failed message, it does not always mean the memory is not working properly, but a weird thing — it is already being used by something else.

Control

It is with the <CB> set breakpoints command that we move from the state of the interrupt to the disassemble. As mentioned above machine code does not have any of the equivalents of Basic to stop programs from running out of control. What routine is it help to overcome this problem? When this routine is called it will swap the byte into address returned for a software interrupt (SWI) instruction. This byte is placed is stored in a table for later restoration. When the machine code is run then it will indicate as internal until it encounters the SWI where the program is interrupted. All 6502 registers are stopped at the "break" and control is redirected via the interrupt routine to the Register restoration routine (see below). The program can set up to ten breakpoints and these are all displayed on the register restoration screen.

Pressing the `<X>` clears all the breakpoints set using the `` function. The previous inserted SWI commands are replaced by the original code and the program returns to the menu. SWI commands placed using the `<C>-all` command or the `<A>`-User memory sources are not affected.

The regular information screen called by the `DEI` command can also be accessed by pressing the `<R>` key. This however will then clear (display) the contents of all the memory registers (`Q1A`, `AUDP` & `U1L8`, `P0`). When called from the status screen, they do not reveal very much about what the computer is doing. But when called by a `DEI` command, they give the exact state of the computer as it was before it played the interrupt. This enables one to check out whether or not a piece of code is working in (that is to say it should). Pressing the `<Q1B>` key will cause the computer to continue from where it had got to (make sure that you are returning it to the start of a valid instruction), as the inserted `DIS` command

replaces one byte of the machine code, whilst some instructions are three bytes long. Pressing the <Ctrl> key will call the after program module, whilst Shift+Ctrl key will return the program to the Options screen. If the shift mode is selected, a Selection cursor works, it may move the registers, and you must type in the desired values by hand. The value entered into the Program Counter is the address to which the computer will transfer control. However, before the computer quits the routine it will wait for the <Enter> key to be pressed. Any other key will cause a return through the register routine again. This is in case you enter the wrong values into the registers.

The status of the registers. Press **<Cn>** to continue, and see if you can follow the **Machine code** to the results displayed on the screen the next time it is displayed. Does you understand what it is doing by experimenting with it. Press the **<Dn>** key and enter some values and see what register **Machine code** the **Condition Code** register set to a value, and then the program continues to return to the routine.

The last two functions are called by the `Alt` and `Ctrl-Q` keys, and act as jumping points of machine code and Go to a machine code subroutine. The first will leave the monitor program and follow whatever the machine code expects next, while the second will also follow the machine code but return to the monitor when it reaches the end.

To escape from the program press the `<Esc>` key and the computer will return to its normal functioning. However, the interrupt and breakpoints will not be reset, so, for example, if you set a breakpoint at location `next`, the computer will return to the monitor every time you try to pass it.

If you do not fancy typing in the program, I am willing to supply copies on tape for £3.60. I will also provide a version configured to reside in high memory rather than on the graphics pages. Send a cheque to Peter Whitbeck, 73 Moreton Street, Cam-bridge, CB2 2LP.

Routine

By a careful examination of the register routine and the setting of Breakpoints pieces of machine code can be tested with little fear of them going out of control. To demonstrate this, POLARIS emulates EXEC in Monitor. Select the `0000` memory routine, and using `1000` as the start address, enter the machine code for Listing #3 (second column from the left). Get the routine by pressing `Ctrl-Shift` and then `Ctrl-Z` using the code at `1000`. As the code runs it will move across the SWI comments and be repositioned to the original destination in `0000`. There are many options

HACK THE CORE LINTING

```

7501          11    PRT
15000         20    PROG  B1E00
15000 4F      20    RESTART C1 RR
15001         20    CLR8
15002 00000000 20    LOC  80
15003 10000000 20    LST  80
15009 9881     40    GLOOP  RTRM  #1
15010 C002     40    SUBB  #2
15002 300000    40    LEAK  #4
15009 3127     40    LERY  3.Y
15111 3F      40    SMT
15112 7E1000    40    JPR  BLTOP
15113         20    END  RESTART

```

L-17

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 Device 2 (right): None (Right Click).
 Device 3 (middle): None (Middle Click).
 The fine control buttons are:
 Control 1 (left): Control Click. Control 2 (right): Context Click.
 And the QM-0.8 (left) buttons are:
 Control 3 (left): None (None). Control 4 (right): None (None).

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卷之三十一

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Pure Speculation!

This year's Budget gave a boost to small investors — so Brian Cadge was asked to take stock of Sharesax

If "You are already an investor in stocks and shares, or are just breaking (or entering) the world of "Capital Gains, Dividends and Pensions?" Then (therefore) from Harris Morris Software, as profit, balance, a book of

Shrededit is a shareware management program which will help you keep an eye on all your holdings of stocks and shares, helping to analyse their performance over the year. An enormous amount of effort has gone into Shrededit's interface. Shrededit uses its own custom 40x24 screen and keyboard driver. The character set has been improved and now gives a noticeably sharper looking text. The keyboard driver supports deadkeys and is database aware. The key repeat rate can be altered by the user, as can the background colour of the text window (although the default settings seem to do well).

The phase management software automatically controls all three programs. Structure and Shredder functions can be run individually or called from each other. Shredder deals with the creation of BBS and their maintenance while Shredder is used for the creation of all reports.

Both programs are menu-driven and include some limited error-checking. The consensus mainly of having three input types: numeric, date and alphabetic. There is also some checking of numeric values at key points of input, although one point I found interesting was that the program would not accept '30000' as a valid date - obviously meant to be used.

Screen

The screen is divided into three sections. The top line displays the option heading, program name, and data type of the input required (eg. **NUMBER** for numerical and **TEXT**). The bottom line is used for option selection, error and help-messages. The main section of the screen is used for the menus, forms and reports. When entering data the cursor keys can be used to edit the current field, or move to the next or previous field. **Shift-F1** gives a line of help at the bottom of the screen, which usually consists of an explanation of the data type required, and what up-coming items relate to the main menu immediately (for **SELECTING** options).

After an initial sign-on message, *Bluebeam* presents a main menu containing a listing of nine options. The first option will be used most for either "Create new file" or "Open existing file." Up to 99 documents (of various lengths) can be opened on each disk (providing there is enough disk space). Each file is indicated by its file number and optional password. A filename is also given that is printed at the top of reports who had to be "lost" the actual filename given to the disk file.

Each share record is identified by a short name of up to eight characters used to sort and retrieve the records. For example, "Uptown" should be used as a short name for "United News". When searching is needed, type a search term or a short name; the user is allowed to expand the record, continue the search or end at the preceding or next record if no match is found. Then the "insert" is entered.

Records

Within the above record we fields for full name, security code, group number, classification code, estimated patient age, purchase price, current price number (MURS) here, original game, tax credits and discounts. The share price may be quoted in pounds or pence (up to a maximum of £9999.99 in pence). There are 30 group numbers, covering most types of shares. The group number can be used with the short name for selection of participant records within the reports program. Any field of a share record can be changed at a later date (again from the short name screen) by directly selecting the "change record" option, or automatically from within other screens.

Sandbox handles 10 "periods" of time, averaging the prices of the shares for each period for each period. Once the time period is started, the price of shares in the first is lost and so on. This information is used within the response program. The length of time between one period and the next is adjustable up to the user, and need not be constant.

Check off the critical skills that have been addressed.

state with share prices for the current period, and any buying or selling you do. One of the problems with Shareline appears when you based the system to buy more shares. A share record contains bid and purchase price, and price value for the number of shares held. However, you will hope that they buy more shares at a later date, and at a different price. Hence suggests that there are different share records for different "version" of share purchases, and although this will work, it becomes a bit of an annoyance factor.

This problem also affects the "Sell Shares" option. The user sets the number of shares to be sold and the selling price. From this it calculates the capital gains made by the user. This will be negative if shares sold were bought at a stated price from the original purchase price. The program gives you the opportunity to type in the correct capital gains that you calculated as a response. The share record is then updated with the new holding and capital gains for the year. The user is allowed to enter a new value at any time, and no zero (zero percent) value of dividends, capital gains, and tax results.

Dividends received are entered by selecting option six. The program prompts for the amount received and the tax credit. This information is then added into the previous share record.

All reports from the share management system are produced by the other programs in the disk Sharing. There are six different reports that the program can produce for each file. The data to be included in a report can be selected by range of short name, and by range of group number. Some reports also allow selection of specific files.

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PLAQUE EXPONTE

Create New File
Open Existing File
Edit Entries
Change Share Record
Delete Entries
Print Log
Change Share Prices
Print Report by Day

TABLE OF CONTENTS

can be sent either to the screen or printer, output to printer being generally more detailed, taking advantage of the full 80 columns and is automatically paginated 11/1 paper. One limitation is that only one file may be accessed at once, there is no cross-referencing of other files.

Briefly, the different reports provided by are as follows. Firstly, there is the "List Share Value/option" option. This produces a report on the valuation of shares, from two different periods, and the profit or loss resulting. The total values for the two periods are the original purchase price (period 0) and the current price (as and file).

The "List Capital Gains" option shows all share records which contain capital gains or losses (or during the current year). The "List Dividends Received" option shows all the dividends and tax credits received to date in the current year, and calculates the yield percentage plus dividends as a percentage of the holding at the current price.

A potentially useful report is the "List Income Forecast". This will show all the shares which are expected to pay dividends within the range of months selected and will estimate the dividend received.

Price changes in shares over a period of time can be shown with the next option. The default for this period is from the original purchase to the current price. The report shows the start price, mid price and the percentage change.

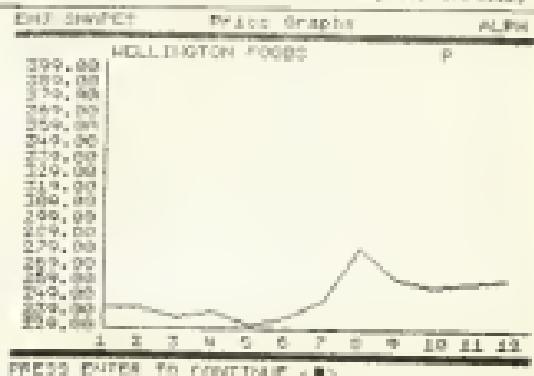
The final report allows a graph to be drawn of the price changes in particular shares over the 12 periods. This gives a

visual indication of their performance. If the share is selected then a simple line graph is drawn, or a better line graph is drawn using three share prices. Because of the vast differences in share prices, different scales are used on different graphs; therefore care has to be taken when comparing output for different shares to take into account the scale.

Overall, Sharebox functioned extremely well under all tests. The displays are clear and well laid out and the data structure seems sensible. The 30 page A4 manual is up to Horn's usual high standard, explaining each step clearly, with a useful contents

page at the beginning. Apart from the fairly minor problem of having to have different "formats" of shares, I would highly recommend Sharebox. The program deserves to do well, but just how large a market there is for software such as this on the Dragon remains to be seen.

Program: Sharebox Share Management Program **Requires:** Dragon 32/64 and Dragonboard/Cassette Disc 2.0 and optional printer. **Price:** £15.99 **Pross:** Horn Micro Software, 48 Alcestone Road, Hounslow, Middlesex TW5 4NP. (Tel: 01-570 8220)



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Dragon Answers

Talking Port

I AM building a speech synthesizer from my Chapter 22 for use in conjunction with the cartridge port. What I need to know is how to send and receive data via the port + what memory addresses to use. I would also like to know how to output the sound signal via control to the interface.

and to bring up in
one mixed book for
the use of each on the
line carriage part.

This last part address line is brought out to the carriage post, at the address you need displayed correctly on your telephone address directory. To make it permanently you should engrave the LID or its address book.

Cartridge sound is selected by setting Bit 3 of SFR11 and setting Bit 3 of SFR05 and Bit 3 of SFR21. The signal applied to Pin 30 should be synchronized directly with the sound music square.



which will deal with the string variables, whether to generate or not a variable name (say the *Parameter* section). He thinks on this problem.

It is possible to change the basic command in new text. To do this you must copy the RDT's command name and address taken down into RDT and place the position at 250-251 and 251-252 sequentially. You can now FORCE into the same table to change command names to anything you like, with the constraint that the length of the command must remain the same.

Another source of blurring is the reading frequency, which may be sympathetic with Beck's findings and may also bring the displays concentrated. However, the "Dragon" display is most particularly good when let into a green screen monitor unless the text is inverted — then an illegible green just does not seem to work well.

I certainly would not recommend starting this latest stage at a normal intensity until this one completes the process, and in any case you should seek expert advice before initiating either of these or your present and upcoming activities at all.

Diseases

I have just recently purchased a
Cameras Disk Drive and QOS-
Net. I want to know is all the
Gregorian Data you can buy
from software companies such as
the Camera Disk system as I am
not sure and I don't want to buy
any disks until I know the answer.
Michael Hochberg

CLUBBING has 3-4 years for establishing formats and conventions in Categories 1, 2, and 3 to compete with major programs. I say most programs, as I have not had an chance to study the Canadian PGH in detail. These programs should be no problem, but our local stations would be in danger before introducing a program.

Routine

I AM (presently writing) a database program for the Dragon 32 and Originals. I wish to be able to access the status 240 from machine code, but I have no idea from the go about this. Could you please write a small routine to demonstrate how to use the status page?

卷之三

New Command

In JANUARY 1996, Dragon User I
asked just how fast there are three
variable numbers (CROSS,
OKTAKS and ODKOPENSK) but there
are no variable routes for checking
for quotes on the command line
eg. VOFKEY "1996". What is the
route for checking for variables
for the quotes?

Also it is possible to change existing basic approach to your requirements as per your

Moscow
at Winton Place
Museum
Loyalty
Worship

Monitor

RECENTLY I purchased a Green Mamba by my Dragon to complement her. It seems that this mamba is not fully compatible with the Dragon.

The problem is that the quality of the picture reproduced on the screen, especially when the fontSize is set to its last value, is such that it appears to flicker quite a lot, and only when I zoom in or zoom out, then contrast button can it really read my body movements, on the screen. A friend of mine suggested that I should take the camera off its focusing in order to improve the quality of picture because it is the cap which is closest to the microphone.

Maryann Marceau
39 Linton Ave.
Salem
OR 97301

Blighian Geography Glossary

SEVERAL problems could be causing the symptoms you describe with the monitor. Firstly, the Omega 4 monitor output has an impedance of 200 ohms, and these monitors require 75 ohms. A suitable load can raise the impedance.

Basic programs can be bypassed by pressing "ctrl" and "break" simultaneously. Any program that has been running will stop. Type in the following line as a status command and wait for the DOS prompt. If you type this may take several minutes for a long program.

MIKE GERRARD'S ADVENTURE TRAIL

ONE OF the ways I avoid the task of new adventure releases, for the Dragon is, of course, for people to start writing them out. I do receive home-grown adventures quite often, and though I always respect the amount of hard work that goes into creating them, the majority do have to be sent back with a letter of rejection as I can't give space in the column to an adventure that isn't fully or bugged and that I can't recommend other readers to buy.

Just occasionally, however, one comes along that's a little special and I might just check people's attention to it. This last week one called *The Islands of Salvation* arrived several months ago, and which has now been published by Quicksilver Software. It's looking a longer look at that next month, but this month I am happy to recommend an adventure called *Quicksilver Space Mission* written by Michael, who's also done to tell himself *Mission*. He told me the adventure took him about 30 hours of programming time and about 10 hours of preparation, and it's that preparation which impresses. A lot of thought has gone into the game, and it shows that you can still come up with something different if you set your mind to it although I'd like to see it a little changed to something a little less obvious.

The part of the program consists of the optional instructions and mission briefing and though the cassette interface remains ready with my review copy, it's good to note that the provision is very detailed and the instructions are sensible comprehensive and also make you go to write to Brooksoft for help if stuck (well, it makes me feel easier).

Mission

The scenario might just sound vaguely familiar to you, that the fifth starship, the Endeavour, was launched in 2002 in order to find the previous four, all gone missing. Only two months after the launch the crew (well, most of the crew) had taken off with something mostly called *Dragon Fever*. The only known cure is an antibiotic derived from Rystalyn, which you don't happen to have in your medicine cupboard right now. Nor do you have the delivery equipment you'll need to protect a patient and your antibiotic. Fortunately Rystalyn has been located on the planet Holberg by your Science Officer, Mr Belvon, who sounds like something you buy at the chemist to rub on chapped lips. You've got permission

from Starfleet HQ to land on Holberg, so over to you the Adventure Player.

The reason I like this adventure, for a Dragon game at any rate, is that you actually control four characters. You're given a menu screen initially inviting you to choose one you start off with, but in playing the game if you type MENU as a command, you can switch to one of the other characters. As happens at The House of Raan on the Spectrum, Amstrad and other machines, only certain characters can perform certain tasks, so if you're having trouble with one try asking another to do it. The instructions say that only Belvon can research portions, and I can well imagine someone who writes worth re-explaining.

Characters

The characters all start in different places, and the response time as you switch between them is very quick indeed. Captain Christopher James, for instance, begins in the command area with a row of labelled switches in front of him because his Captain's Com unit and seats going North and East. One downside of the game is that the screen displays portions with flying up 'EDD' and 'ED' in it - doesn't look very good, and neither does the title being printed at the end of the first section description.

Back to the Captain, however. If you remember it you'll know it has five buttons there to summon the other main crew members, one to summon a security guard and one to switch the machine off. You might want to summon one of the other members to fly their ship with a few tips in finding today in poor journal information, so you press the appropriate button and your location description is updated so that you can also get the second character to think it's in solving the problem, and naturally they can also see the first character in their location description. Very neat work.

With James in the command room, Belvon in the Scientific Officer's main pod, Engineer Hanish McDonald in the engineering section and Sparta on the side bay (both parts he calls 'droids') away go. The next reason for applying this adventure is the trouble that's later taken to give you the feeling that you're actually in a spaceship. The location descriptions are only used, but there are plenty of them

interconnecting nicely, and even other characters in different parts of the ship this is all very effective.

You'll need your mapping skills and lots of paper because there are at least six levels of the ship, each a bit to have you between them (approximately) on the first floor and you're on the bridge with only leading East, West and South back to the left. There are exits in all directions if you emerge on Level Two (the side bay), Level Three (a corridor) or Level One (the transporter room). The other levels will take you to the engineering section and the shuttle-bay, in addition to that, though, and all the locations that are on each level you can also switch between floors using the service liftshuttle. I found such a hatch on Level Four went through it and up a ladder crossed over and climbed down a service vent until I was on Level Three where I had a brief encounter in the ceiling-room. I can't tell you much about the problems anyway because I've been spending my time trying to map out the spacetime, just making a note of where various objects like tools and protective clothing are. There's a SVIII option, and apart from the screen layout and a necessary toolbar could be extended a lot. If this is an excellent adventure, I've thought that in a healthier climate for Dragon software the author would have found a larger software house to publish it, but here's independent copies instead and they're available for £24 from Brooksoft, 33 Brooklands, Motteyn Garden City, Herts AL2 1RF. Worth every penny, and I hope to be looking at Space Trail it next month.

One thought that occurs to me, and which I think out to any spacetime software houses that might be reading this, is that the thing is the *ioneer*, and a company called *Space Software* has just published a tour of Specimen adventures that have already been released but rather neglected, which is excellent value at £7.95. Why not the name for Dragon adventures? There's plenty of good material out there, some of it no longer widely available, and I know from the sales of my *ioneer* every month that there's a large potential market. How about it, someone?

Devoting all that space to one new adventure means I'll have to try to cramp everything else into the last two columns instead. A lot of readers needing help, so

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maybe you can pitch in and sort them out if I can? This is a new way thing, remember so if you've ever received a clue from anyone somewhere you can fit it to the same for another adventure?

Richard Head, 37 Edgeworth Drive, Pilkington, Manchester M14 8LU having trouble getting into the yellow pool in *ED Deakins*. Try another colour, Richard.

S. Gossage, 48 Albany Road, Earlsdon, Coventry CV5 6LU enquires about Salamander adventures. He was trying to track down Franklin, Wunderbar and Miles Cliffs of Dover. A few copies of the former are around, but the newer copy I received of the latter, suspended with an "Out of Memory" error when inserted, I found it showed copies were made available, so I sent off the three others. Salamander were cutting back on dragon releases. Anyhow, when over? This reader also thinks he's solved *Jerusalem Adventures*, but having found treasures has got nowhere to put them. Any suggestions, please? And I suppose there's \$10.00 CASH to you.

Julian has now sold anyone who'll take a copy of the publications for Dragon Dietary Adventures Trilogy which he bought at the first EGOG Show. All he's going to let me stand in an arena and get killed. Any help to Julian at Howells College, Finsbury Street, Fugger, West Sussex RH12 4QA.

G. Ashurst of 49 Fosterville, Sysonby, Leicestershire LE7 8NP offers help on Dragon Mountain, but is stuck in See Quest how-to-get-the-acute-pair and if you need a credit card then where is it? RECOMMENDED EGOG MEET EGOG HICKIES AND INKA ERKES.

I have to say to you Mr Ashurst!

Chairman Fair of 12 Preston Court on the excellently named Lumbertots Estate, Northampton NN2 4HD is playing Jesus passion and having no luck getting into places like the last shelf and pyramid. Looking along major roads I think you just a case of typing ENTER. Careful if that's wrong, perhaps some reader would put Dame right, if only for the pleasure of addressing an envelope to the Lumbertots Estate.

M. Hobbs, 10 Weston Way, Weston on Yeovil, Somerset BA2 7BL, has come across the bridge in *Dragonstone* because security robots in Level 10 space and enter skull in Mountains of *Astur* (Corinna Debenham, 23 St John's Road, Penney Lane, Bedford MK17 8AS) in Black Sorceress, what is she up to? And when is the Bishop's ghost given you, and what does he say?

Gary Coggins, 189 Newington, Gloucester, Herefordshire GL1 1SS, various problems on *Hill Chapters* and wants a game of Marque of 2000. Richard Health just wants to see Inquest nights or Dragon User meetings, but also needs help in several places in Thieves and Anticipation, and wants to know where to buy See Quest. Shamus goes Celtop Island and Black Sorceress is in need. Richard, RECOMMENDED. Sorry can't get out of the habit. Touchstone's that's Unit 9, Beggar Industrial Park, Baglan Port Talbot, West Glamorgan SA32 7UL Telephone: Bridon Ferry 820318. Richard is at 66 Newcastle Road, Leek, Staffs.

And I'm at the end of the column. Isn't it clever the way it always finishes at the bottom of the page. I don't know how we do it.

Adventure Contact

To help publicise adventures further, we're initiating an Adventure Helpline — simply fill in the coupon below, along the lines of the information you provide, and your name and address, and send it to Dragon User Adventure Help.

Inv. 10133 LURP Reward Silver London 99999 777. As soon as enough entries have arrived we will start printing them in the magazine.

Don't worry — you'll still have Adventure Help to write to anyway!

Adventure

Problems

Name _____

Address _____

May 84

Adventure Contact

Adventures *Anticipation*
President: Ross Smith (UK), Julian and have the *Claw of Riven*. What do I do with the ring (not the ring itself) after the Imperial request? How do I get the amulet without dying? Name: Grant Chambers Address: 15 Haycombe, Durweston, Mendip, Somerset BS11 1PR.

Adventures *Shenandoah*
Ring of Darkness Mission Problem: I can't find the Gold Token or Kula. How to get out of the apartment? How to open the door? Name: Ian Givenshaw Address: 102 Albert Street, Milnrow, Oldham, Lancs OL1 1AA.

Adventures *Treasure* Problem: How do I use the transport and how do I open the safe past all the environmental controls? Name: Paul Marsh Address: 80 Liner Avenue, Bentley Woods, West Midlands, W7 5JF.

Adventures *Franck's Tomb*
Problem: I have reached the main hall, have been in many rooms, cannot get out. Help! Name: Hywel Parsons Address: 10 Thomas Street, Trefethen, Newport, Gwent.

Adventures *Star Trek*
Problem: I've got caught in the apartment? Name: Helen Hansen Hunger Address: Lovers Colliage, 2 Melville Kirkgate, Carlisle.

Adventures *Shangara*
Problem: Can't get past the pub stage. What significance the muggers and police? What does the billboard say? Name: Tony Jenkins Address: Lyndholme, Pembrokeshire, SA42 0QZ.

Adventures *Judgement*
Problem: Can't find Dennis at home or how to get away with the Endless Escapade. Name: Paul Dicks Address: 102 Longthorpe Road, Lower Gladholme, West Midlands, DY3 3EH.

Adventures *Last in Space*
Problem: Name? I got the ship to land? Name: Jonathan Gill Address: 16 Chelmsford Green, Little Sutton, South Warwickshire.

Adventures *Judgement*
Problem: How do you get the entrance? Name: Paul Marsh Address: 7 Ennerdale Crescent, Clifford, Nottingham NG12 8LG.

Adventures *Talismen of the Ring*
Problem: How can you get the Magic Green Book from Human Village without there being land mines? Name: Scott Lorimer Address: 1 Deepdale Drive, Motte Park, Carlisle CA2 8LS.

Adventures *Mission of Doom*
Problem: When I shoot the assassin the road down disappears. What should I do? Name: G. Lovell Address: 1 Deepdale Drive, Motte Park, Carlisle.

Adventures *Judgement*
Problem: Where is the Yellow Egg? Where is the righteous street? How do you get into the tower? Name: Richard Marsh Address: 7 Sandholewood, St Michaels at Work, Thanet Kent CT12 0PE.

Adventures *Treasure* + *Judgement*
Problem: How do you get across the channel? How do you get off the second level? Name: Mark Cowan Address: 29 Lincoln Road, Washington, Lincolnshire LN1 1DD.

Adventures *Mystery of Java*

Star Problem: Cannot find ruby on ship. Name: Peter Rees.

Adventures *T. Rochester*
Ruthven, Middlesex
Adventures *Cave of Bones*
Problems: How do you keep your hat/magnet? What do you do after you clear the pond? Name: Peter Rees Address: 2 Rochester Avenue, Ruthven, Middlesex.

Adventures *Colditz* (Metal)
Problem: How do I get the keys from the sergeant in the temple? How do I get the keys from the master on the beach? Name: Gary Turner Address: 102 Whirlgate Road, Bilton, Doncaster.

Adventures *Castle* *Adventure*
Problem: How do I break the glass in the North East? How do I open the small box? How can I take the small box? Name: Gary Turner Address: as above.

Adventures *Quest* *Problems*: How do I open the chest? Name: Gary Turner Address: as above.

Adventures *St. Davids* *Problems*: I've been everywhere but can't seem to do anything. Name: Gary Turner Address: 102 Whirlgate Road, Bilton, Doncaster.

The Numbers Game

Gordon Lee makes a connection between cornflakes and maths — with 20 Blabby games at stake!

LAST MONTH I concluded with a question of probabilities involving three boxes and six marbles. The reason is this question is posed as that you would be most anxious to expand the list of events (sides), as there is only a 50% chance of you winning the bet provided that the nature of the hidden marble is unknown being either same colour as the first that has been removed. In this case the bet is really that the two chosen will be one of the two with like-coloured marbles, as opposed to the chance of selecting the single box with the white marble. Looked at another way, if the outcome there are six marbles — three of each colour. If the revealed marble is red, then the chosen box cannot be the one with the two white marbles, so two white marbles can be removed from the selection. This maximises other three marbles that have red. Hence, only one box is white and two are red. Therefore, suffice assurance analysis since the colour is guessed before the marble is removed.

Odds

When assessing odds at everyday life it comes as no surprise to find that the true winning expectation is usually in direct proportion to the odds. For example, a bet of one pound on a horse race will have a relatively high chance of success (as there are a limited number of horses running in a race) but the total payout will be proportionately small. Conversely, the same amount staked on the longest odds may not be the highest but of course the odds against the happening are many times greater. The actual precision of the odds in these cases is often quite different entrepreneurs, but in games such as roulette for example, the winning odds paid are directly related to the probability of the bet winning. Thus the red/black, even/odd, high/low type of bets pay off at even odds when a single number will win at 35 to 1. The

were not for the "zero" compartment on the wheel, there would be placed no "bet odds" when assessing against the probability involved. However, the zero (and in American roulette the "double zero") lengthen the odds in favour of the casino (and against the punter).

Mathematical literature is particularly rich in the field of probability paradoxes such as the example quoted last month. Usually the paradox depends on an analogous or misleading way of presenting the paradox. For instance, I might say that if two dice are thrown, a score of 11 can result in only one way — a five and a six — and a score of 12 also in only one way — a double six. From this the possibility of each is equally likely. Chosen extraction will reveal that this is not the case as a throw of 11 is possible in two ways and 12 in only one. That is, a five and a six or a six and a five. Therefore there is twice the expectation of throwing an 11 than a 12. The following program illustrates this clearly by displaying all 36 possible scores generated with two dice.

```
10 FOR A=1 TO 6: FOR B=1 TO 6:  
20 PRINT A,B; NEXT B: NEXT A
```

A form much used in computing odds and probabilities is "factorial". The factorial of a number is the product of all integers up to and including that number. The factorial of 5 would be $1 \times 2 \times 3 \times 4 \times 5 = 120$. Mathematicians say "factorial" as to denote this value when writing down the exact calculation results is used. If we would write $5! = 120$.

Factorials are frequently used for computing the number of different permutations of objects. The competition in the March 1985 issue of Dragon User was to determine the number of possible arrangements possible with a standard pack of playing cards. Since the top card of the pack can be any one of 52 possible cards the second had any one of the remaining 51 and so on down the pack. The total number of permutations of cards will be

briefly concerned the program.

Make sure that your name and address are clearly printed on your entry — and don't forget to mark your envelope "Mail Competition". Envelopes without the mega words mysteriously disappear in reaching the Editor's desk.

And for our monthly competition complete the following phrase in less than 10 words — I get a look out of my Dragon because... As usual preference will be given to the more creative efforts.

Prize

The rewards we have in store for all you Blabby fan fans — 20 copies of the Blabby hi-Kung-Fu — The Master. This game in the ancient traditions of the Eastern mystic arts, allows you to meditate here only on life-like (kung-fu) fighting — and then smash the living daylight out of a few Dragon-ups! All good clean fun.

Rules

To win a prize you must first show the answer to this months' competition and how you solved it with the use of a Basic program written on your Dragon. For the sake of our Thugs, please do not send in a

given by 52! That is, $52 \times 51 \times 50 \times 49 \times$

The final computation is a staggering 68 digit number.

Perhaps more familiar is the type of competition which, for want of a better name, might be called the "combinatorics" competition due to the fact that they are frequently to be found on the packets of scratch cards. To enter it is necessary to arrange a set of numbers (usually ranging 0 to 999) in correct order — or at least the order decoded by some panel of experts. As an example, if there were 12 numbers listed the number of possible permutations will be 13! — that is 479,001,600. In other words, you would need to scratch over 479,000 instant cards to be certain of winning the lot. Obviously the competition is made a little easier when the top eight numbers need to be listed — that is, the four less important features can be disregarded. In this case the calculation would be 12!-4! or 12,096,480, a reduction on the previous value, but still an enormous amount of stamp-flicking to be sure of winning in a winning way!

Occasionally, the actual order need not be specified if being necessary to only name the eight features in any sequence. This increases our winning chances quite considerably as we can divide the previously computed odds by 8! — that is, decimal eight. The actual number of possibilities will now be 13!/(8! × 8!) = 60. Now there are only 460 combinations possible.

You should now be well prepared to tackle this month's competition problem. During shopping at the local toy shop, a tray containing 36 ordinary dice was handed to the boy.

The boy scuttled around, running his hand over an assortment of faces, an eye. Can you determine what the odds would be of all 36 of the dice coming to rest with the same uppermost? For the answer we need to know the exact computation down to the last digit!

Win: Justin Innes of Heath, Julie Brown Woodland at Boundary Road, G. A. Head of Canterbury, Lance M. Armstrong of Basingstoke, Sophie Anthony of Buntingford, Mike, Chris Price and Christopher R. J. Roseman of Addlestone, Surrey, Jim Thompson of Chesham, Oxford, P. J. Taylor of Ashton Hayes, Warrington, Cheshire, Lucy Martinez of San Sebastian Spain, Rachel Edmunds of Gedlingfield, Co Durham, P. O. Macbook of Taplow Banks, A. Wilson of BIFPO 106. Congratulations one and all.

February winners

In February we were giving away ten prizes — and the lucky winners were as follows: Charles Daly of County Cork, Eire, Mags Roberts of Portcawl, Mid Glamorgan

Solution

Finally for those who still might be struggling here — the answer to the puzzle was 640945 - 74285 = 598590.

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